



**THE DATASHEET OF  
FZT955TA**



# SOT223 PNP SILICON PLANAR HIGH CURRENT (HIGH PERFORMANCE) TRANSISTORS

FZT955  
FZT956

ISSUE 3 – MARCH 2005

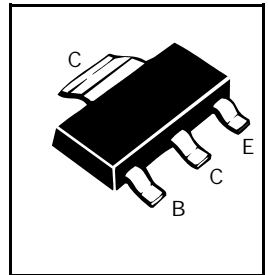
## FEATURES

- \* 4 Amps continuous current (10 Amps peak current)
- \* Very low saturation voltages
- \* Excellent gain characteristics specified up to 3 Amps

PARTMARKING DETAILS – DEVICE TYPE IN FULL

COMPLEMENTARY TYPES – FZT955 - FZT855

FZT956 - N/A



## ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	FZT955	FZT956	UNIT
Collector-Base Voltage	$V_{CBO}$	-180	-220	V
Collector-Emitter Voltage	$V_{CEO}$	-140	-200	V
Emitter-Base Voltage	$V_{EBO}$	-6		V
Peak Pulse Current	$I_{CM}$	-10	-5	A
Continuous Collector Current	$I_C$	-4	-2	A
Power Dissipation at $T_{amb}=25^{\circ}C$	$P_{tot}$	3		W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150		$^{\circ}C$

\*The power which can be dissipated assuming the device is mounted in a typical manner on a P.C.B. with copper equal to 4 square inch minimum

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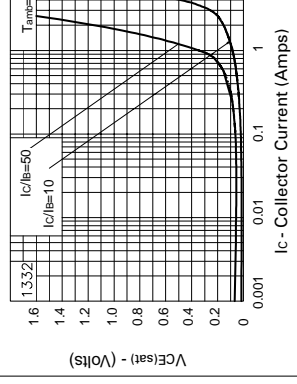
FZT955

**ELECTRICAL CHARACTERISTICS (at T<sub>amb</sub> = 25°C unless otherwise stated)**

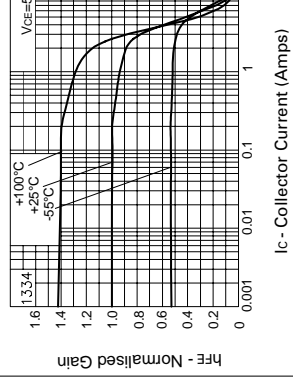
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS:
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	-180	-210		V	I <sub>C</sub> =-100μA
Collector-Emitter Breakdown Voltage	V <sub>(BR)ICER</sub>	-180	-210		V	I <sub>C</sub> =-1μA, R <sub>B</sub> ≤ 1kΩ
Collector-Emitter Breakdown Voltage	V <sub>(BR)ICEO</sub>	-140	-170		V	I <sub>C</sub> =-10mA*
Emitter-Base Breakdown Voltage	V <sub>(BR)IEBO</sub>	-6	-8		V	I <sub>E</sub> =-100μA
Collector Cut-Off Current	I <sub>CBO</sub>			-50 -1	nA μA	V <sub>CB</sub> =-150V V <sub>CB</sub> =-150V, T <sub>amb</sub> =100°C
Collector Cut-Off Current	I <sub>CER</sub> R <sub>≤1kΩ</sub>			-50 -1	nA μA	V <sub>CB</sub> =-150V V <sub>CB</sub> =-150V, T <sub>amb</sub> =100°C
Emitter Cut-Off Current	I <sub>EBO</sub>			-10	nA	V <sub>EB</sub> =-6V
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>		-30 -70 -110 -275	-60 -120 -150 -370	mV	I <sub>C</sub> =-100mA, I <sub>B</sub> =-5mA* I <sub>C</sub> =-500mA, I <sub>B</sub> =-50mA* I <sub>C</sub> =-1A, I <sub>B</sub> =-100mA* I <sub>C</sub> =-3A, I <sub>B</sub> =-300mA*
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>		-970	-1110	mV	I <sub>C</sub> =-3A, I <sub>B</sub> =-300mA*
Base-Emitter Turn-On Voltage	V <sub>BE(on)</sub>		-830	-950	mV	I <sub>C</sub> =-3A, V <sub>CE</sub> =-5V*
Static Forward Current Transfer Ratio	h <sub>FE</sub>	100 100 75	200 200 140 10	300		I <sub>C</sub> =-10mA, V <sub>CE</sub> =-5V* I <sub>C</sub> =-1A, V <sub>CE</sub> =-5V* I <sub>C</sub> =-3A, V <sub>CE</sub> =-5V* I <sub>C</sub> =-10A, V <sub>CE</sub> =-5V*
Transition Frequency	f <sub>T</sub>		110		MHz	I <sub>C</sub> =-100mA, V <sub>CE</sub> =-10V f=50MHz
Output Capacitance	C <sub>obbo</sub>		40		pF	V <sub>CB</sub> =-20V, f=1MHz
Switching Times	t <sub>on</sub> t <sub>off</sub>		68 1030		ns	I <sub>C</sub> =-1A, I <sub>B</sub> =-100mA I <sub>B</sub> =100mA, V <sub>CC</sub> =50V

\*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤2%  
Spice parameter data is available upon request for this device

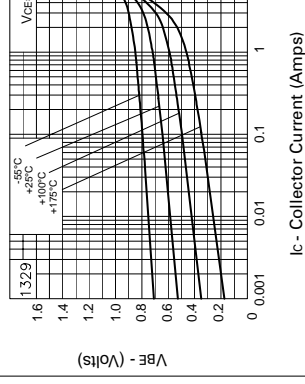
**TYPICAL CHARACTERISTICS**



**VCE(sat) v IC**



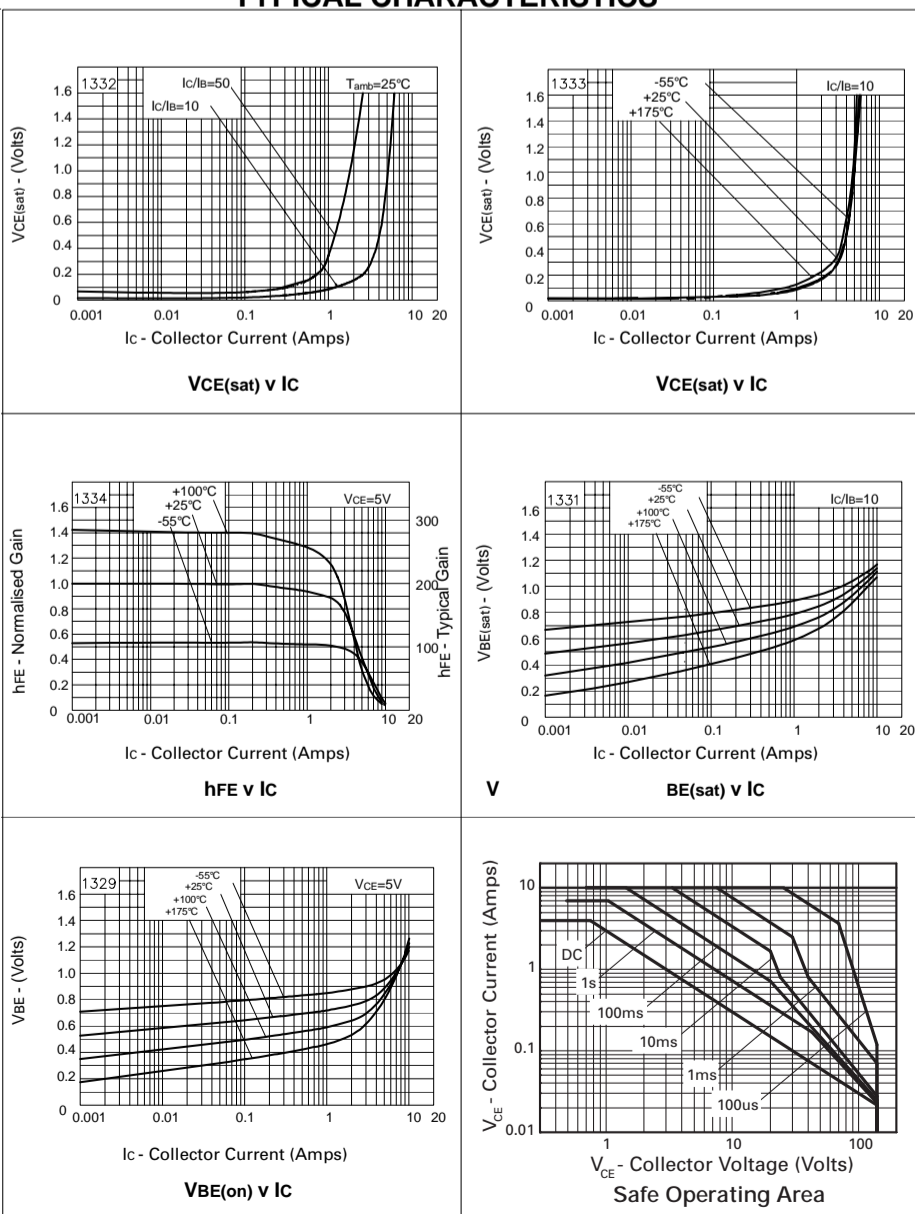
**hFE v IC**



**VBE(on) v IC**

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TYPICAL CHARACTERISTICS



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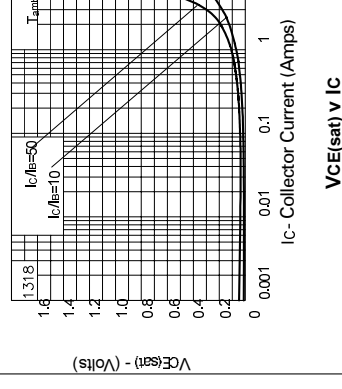
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**ELECTRICAL CHARACTERISTICS (at T<sub>amb</sub> = 25°C unless otherwise stated)**

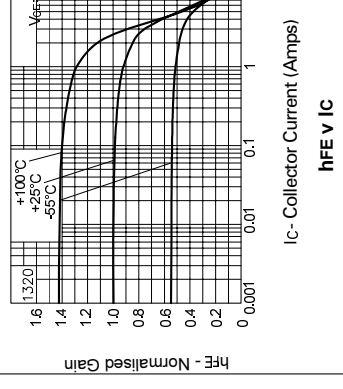
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	-220	-300		V	I <sub>C</sub> =-100μA
Collector-Emitter Breakdown Voltage	V <sub>(BR)CER</sub>	-220	-300		V	I <sub>C</sub> =-1μA, R <sub>B</sub> ≤1kΩ
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	-200	-240		V	I <sub>C</sub> =-10mA*
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	-6	-8		V	I <sub>E</sub> =-100μA
Collector Cut-Off Current	I <sub>CBO</sub>		-50 -1		nA μA	V <sub>CB</sub> =-200V V <sub>CB</sub> =-200V, T <sub>amb</sub> =100°C
Collector Cut-Off Current	I <sub>CER</sub> R <sub>≤1kΩ</sub>		-50 -1		nA μA	V <sub>CB</sub> =-200V V <sub>CB</sub> =-200V, T <sub>amb</sub> =100°C
Emitter Cut-Off Current	I <sub>EBO</sub>		-10		nA	V <sub>EB</sub> =-6V
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>		-30 -120 -168		mV	I <sub>C</sub> =-100mA, I <sub>B</sub> =-10mA* I <sub>C</sub> =-1A, I <sub>B</sub> =-100mA* I <sub>C</sub> =-2A, I <sub>B</sub> =-400mA*
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>		-970		mV	I <sub>C</sub> =-2A, I <sub>B</sub> =-400mA
Base-Emitter Turn-On Voltage	V <sub>BE(on)</sub>		-810	-950	mV	I <sub>C</sub> =-2A, V <sub>CE</sub> =-5V*
Static Forward Current Transfer Ratio	h <sub>FE</sub>	100 100 50	200 200 150 10	300		I <sub>C</sub> =-10mA, V <sub>CE</sub> =-5V* I <sub>C</sub> =-1A, V <sub>CE</sub> =-5V* I <sub>C</sub> =-2A, V <sub>CE</sub> =-5V* I <sub>C</sub> =-5A, V <sub>CE</sub> =-5V*
Transition Frequency	f <sub>T</sub>		110		MHz	I <sub>C</sub> =-100mA, V <sub>CE</sub> =-10V f=50MHz
Output Capacitance	C <sub>obo</sub>		32		pF	V <sub>CB</sub> =-20V, f=1MHz
Switching Times	t <sub>on</sub> t <sub>off</sub>		67 1140		ns ns	I <sub>C</sub> =-1A, I <sub>B1</sub> =-100mA I <sub>B2</sub> =100mA, V <sub>CC</sub> =-50V

\*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤2%  
Spice parameter data is available upon request for this device

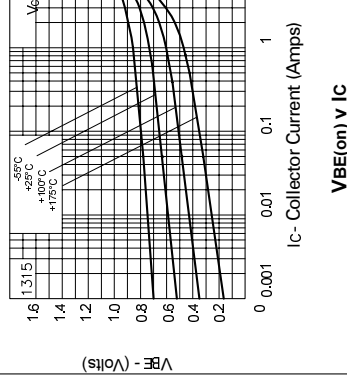
**TYPICAL**



VCE(sat) v IC



hFE v IC



VBE(on) v IC

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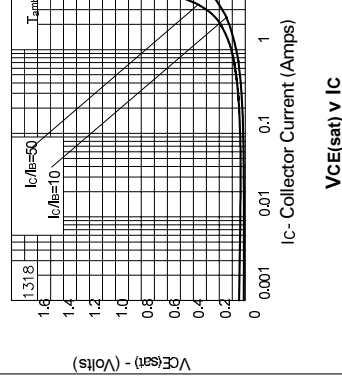
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**ELECTRICAL CHARACTERISTICS (at T<sub>amb</sub> = 25°C unless otherwise stated)**

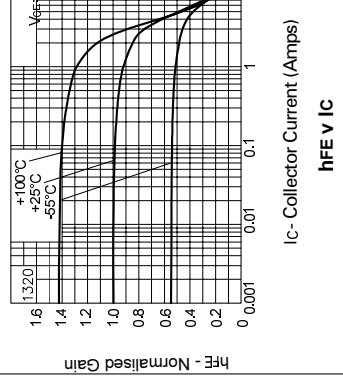
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage	V <sub>(BR)CBO</sub>	-220	-300		V	I <sub>C</sub> =-100μA
Collector-Emitter Breakdown Voltage	V <sub>(BR)CER</sub>	-220	-300		V	I <sub>C</sub> =-1μA, R <sub>B</sub> ≤1kΩ
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	-200	-240		V	I <sub>C</sub> =-10mA*
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	-6	-8		V	I <sub>E</sub> =-100μA
Collector Cut-Off Current	I <sub>CBO</sub>		-50 -1		nA μA	V <sub>CB</sub> =-200V V <sub>CB</sub> =-200V, T <sub>amb</sub> =100°C
Collector Cut-Off Current	I <sub>CER</sub> R <sub>≤1kΩ</sub>		-50 -1		nA μA	V <sub>CB</sub> =-200V V <sub>CB</sub> =-200V, T <sub>amb</sub> =100°C
Emitter Cut-Off Current	I <sub>EBO</sub>		-10		nA	V <sub>EB</sub> =-6V
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>		-30 -120 -168		mV	I <sub>C</sub> =-100mA, I <sub>B</sub> =-10mA* I <sub>C</sub> =-1A, I <sub>B</sub> =-100mA* I <sub>C</sub> =-2A, I <sub>B</sub> =-400mA*
Base-Emitter Saturation Voltage	V <sub>BE(sat)</sub>		-970		mV	I <sub>C</sub> =-2A, I <sub>B</sub> =-400mA
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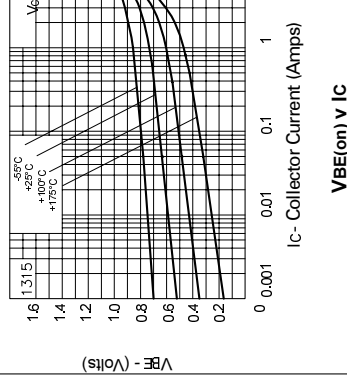
**TYPICAL**



VCE(sat) v IC





hFE v IC



VBE(on) v IC

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